

November 17, 2020

BY ELECTRONIC FILING

Marlene H. Dortch
Secretary
Federal Communications Commission
45 L Street, N.E.
Washington, DC 20554

Re: *Space Exploration Holdings, LLC, IBFS File No. SAT-MOD-20200417-00037*

Dear Ms. Dortch:

In this proceeding, Space Exploration Holdings, LLC ("SpaceX") proposes to relocate the remainder of its authorized non-geostationary orbit ("NGSO") constellation to lower altitudes, moving from a range of 1,110 km to 1,325 km down to altitudes ranging from 540 km to 570 km. There, they would join over 800 satellites that SpaceX has already deployed at the 550 km altitude. This proposal enhances the safety of space operations by taking advantage of the higher atmospheric drag inherent at these lower altitudes that ensures that any orbital debris will undergo rapid atmospheric re-entry and demise, and also reduces signal latency significantly.

Kuiper Systems LLC ("Amazon") has raised a concern about the potential for some of these relocated satellites to overlap with a portion of Amazon's authorized NGSO constellation. Specifically, satellites in Amazon's lowest shell (at 590 km \pm 9 km) and the highest shell proposed by SpaceX (570 km \pm 30 km) could at times operate at the same altitude. Critically, the orbital tolerances SpaceX requested would give SpaceX much-needed flexibility to help promote safe operation with existing systems at similar altitudes. Nonetheless, Amazon asked that the Commission deny the application, or in the alternative "the Commission could condition grant on SpaceX maintaining a tighter orbital tolerance that would preclude overlap with the Kuiper System."¹

After engaging Amazon in discussions about physically coordinating their respective systems, SpaceX is now prepared to operate all its satellites with orbital tolerances that would restrict them to altitudes of 580 km or below once Amazon launches the first satellite in its 590 km altitude orbital shell. SpaceX's concession to Amazon will provide SpaceX flexibility to operate with regard to existing systems before Amazon launches its satellites, while also avoiding any overlap with Amazon once it begins to use its lowest orbital shell during the fourth phase of its deployment. SpaceX's concession would ensure at least 1 km separation with Amazon's satellites even at the very lowest end of their orbital tolerance. This matches the separation distance Amazon recently proposed as sufficient for large NGSO constellations operating in close

¹ Petition to Deny and Comments, IBFS File No. SAT-MOD-20200417-00037, at 12 (July 13, 2020).

proximity in its petition for reconsideration of the Commission's orbital debris mitigation order.² By accepting Amazon's proposal, SpaceX has now resolved Amazon's concern about a potential orbital overlap between the two systems without Amazon having made any compromises in its planned operations.

This commitment on physical coordination should clear the way for the Commission to grant the modification at least in part, subject to appropriate conditions, so that SpaceX can continue to deploy its NGSO system for service where it is needed most.³ Specifically, SpaceX requests that the Commission authorize deployment of one of the sun synchronous polar shells proposed in the modification, composed of six orbital planes with 58 satellites in each at 560 km altitude. In addition to the condition discussed above, SpaceX would deploy and operate these satellites on a non-harmful interference basis with respect to other licensed spectrum users while the Commission continues to process the application. SpaceX would also take full responsibility for physically avoiding any other satellites in these orbits while the rest of the application is pending. Once the Commission has ruled, SpaceX would conform its operations to that decision as appropriate.

SpaceX submits this request now because it has an opportunity for a polar launch in December that could be used to initiate its service to some of the most remote regions of the country. The Commission has repeatedly made clear that “[c]losing the digital divide—and bringing to every American the economic, education, health, civic, and social benefits that a broadband connection provides—continues to be the Commission's top priority.”⁴ Unfortunately, less than two-thirds of the population living in rural Alaska and no one on Alaskan Tribal Lands has access to fixed broadband service at speeds that meet even the Commission's minimum definition for broadband.⁵ By moving its satellites to lower altitudes, SpaceX will reduce the latency of its transmissions below 50 milliseconds, which is nearly unnoticeable to consumers. Combined with the high capacity offered by its system, launching to polar orbits will enable SpaceX to bring the same high-quality broadband service to the most remote areas of Alaska that other Americans have come to depend upon, especially as the pandemic limits opportunities for in-person contact. In addition, for many Federal broadband users, satellite service is the only communications option to support critical missions at polar latitudes, and the low-latency, high-capacity service SpaceX offers for these users could have significant national security benefits.

SpaceX has always maintained that operator-to-operator coordination is the gold standard for resolving issues between NGSO systems. As a result of discussions with Amazon, SpaceX has

² See Petition for Reconsideration of Kuiper Systems LLC, IB Docket No. 18-313, at 8-9 (Sep. 24, 2020) (“Because maneuver burdens are typically calculated when space objects come within 1 km of one another, the Commission could set the sufficient separation distance at 1 km to avoid the need to calculate thousands of additional maneuvers, which furthers the goal of space safety while reducing the administrative burden on operators.”).

³ See, e.g., Stamp Grant, IBFS File No. SAT-LOA-20151123-00078 (June 16, 2016) (granting in part application of Spire Global, Inc. for orbital altitudes that were not in dispute while deferring on remaining shells that could intersect).

⁴ See *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, 35 FCC Rcd. 8947, ¶ 1 (2020).

⁵ See *Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion*, 35 FCC Rcd. 8986, Appendix 6 (2020).

now committed to accept the condition Amazon proposed to resolve its concern. With that issue settled, SpaceX requests that the Commission grant its modification expeditiously. But if the Commission has not completed its full review of the modification, SpaceX asks that the Commission not delay needed service to polar regions such as Alaska and instead issue a partial, appropriately conditioned grant of its modification so that SpaceX can begin deploying satellites with polar coverage that can bring the benefits of truly robust broadband service to otherwise unserved areas of the country.

Sincerely,

/s/ David Goldman

David Goldman
Director of Satellite Policy

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